



Changes in North American extremes derived from daily weather data (article)

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Abstract:

Detailed homogeneity assessments of daily weather observing station data from Canada, the United States, and Mexico enabled analysis of changes in North American extremes starting in 1950. The approach used a number of indices derived from the daily data, primarily based on the number of days per year that temperature or precipitation observations were above or below percentile thresholds. Station level indices were gridded to produce North American area-averaged time series. The results indicated that the increase in the number of days exceeding the 90th percentile is about the same magnitude as the decrease in the number of days below the 10th percentile. Analysis of extremes farther out on the tails of the distribution (e.g., 95th and 97.5th percentiles) reveals changes very similar to the 90th and 10th percentiles. Annual extreme lowest temperatures are warming faster than annual extreme highest temperatures when the index assessed is the actual temperature, but cold and hot extremes are changing about the same when examined on a normalized basis. On the basis of several measures, heavy precipitation has been increasing over the last half century, and the average amount of precipitation falling on days with precipitation has also been increasing. These observed changes since the late 1960s, decrease in cold extremes, increases in warm extremes, and increases in heavy precipitation, are consistent with a warming planet. Copyright 2008 by the American Geophysical Union.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Precipitation, Temperature

Temperature: Extreme Cold, Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Non-United States, United States

Climate Change and Human Health Literature Portal

Non-United States: Non-U.S. North America

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified